

Pollinator Spotlight: Bats

Plants don't just simply grow, they have a lot of help. Whether it's sunlight, rich soil, or a good rain storm, there are plenty of support systems that help plants grow all over the world. For a lot of plants, a vital support system is bats.



LESSER LONG-NOSED BAT FEEDING ON AN AGAVE

BLOSSOM (*LEPTONYCTERIS YERBABUENAE*).

COURTESY OF BRUCE D. TAUBERT

There are more than 530 species of flowering plants that rely on bats as either their major or exclusive pollinators. Some of these plants include agave (which are harvested to supply the multimillion dollar tequila industry), bananas, and balsa trees (which produce the world's lightest timber). In fact, the relationship between bats and agave are so strong that bat populations fluctuate in size in accordance with the success of agave.

In order for plants to reproduce, pollen must be carried from the male stamen to a female pistil within a plant. Unfortunately, plants can't meet up easily as they are rooted to the ground, so they rely on others such as hummingbirds, bees, and bats to move their pollen for them.

The bat pollination process:

1. A bats flies to a plant to drink nectar from the flowers.
2. Pollen sticks to the hairs on their body.

3. The bat flies to another plant for more food.
4. The bat transfers the pollen from his body to the new plant.

Bats have an advantage as far as pollinating goes because they are very mobile creatures and can fly farther than the average insect. The *Phyllostomid* family of bats can transport up to 800m between trees in Puerto Rico and leaf-nosed bats (*Phyllostomus sp.*) in Brazil can transport pollen up to 18km between trees. Bat pollination increases the plants' resistance to pests and disease as well as assists in reproduction.

The relationship between bats and plants is give and take. Some plants, like four species of Venezuelan columnar cacti (*Stenocereus griseus*, *Pilosocereus moritzianus*, *Subpilocereus repandus*, and *Subpilocereus horrispinus*), have even evolved in size and shape to accommodate bat pollinators. If a couple of plants realize they must accommodate for bats due to the services they provide, then we as humans can too!

Bats are very important pollinators in tropical and desert climates. Most flower-visiting bats are found in Africa, Southeast Asia, and the Pacific Islands.

Two species of nectar-feeding bats, the lesser long-nosed bat and the Mexican long-tongued bat, migrate north a thousand miles or more every spring from Mexico into Arizona, New Mexico and Texas. Both are listed as federally endangered species.

Bat Flowers

The flowers that are visited by bats are typically:

- Open at night;
- Large in size (1 to 3.5 inches);
- Pale or white in color;
- Very fragrant, a fermenting or fruit-like odor; and/or
- Copious dilute nectar.

Bats feed on the insects in the flowers as well as on the nectar and flower parts, such as calabash, sausage tree, areca palm, kapok tree, and banana.

Over 300 species of fruit depend on bats for pollination. These fruits include:

- mangoes,
- bananas, and
- guavas.

The Agave plant and the Saguaro, state cactus of Arizona, also depend upon bats for pollination. The agave is an important plant because it is used to make tequila.